

Papers by Bell Laboratories Authors

BIOLOGY

Fluorescence X-Ray Absorption Studies of Rubredoxin, Its Model Compounds. R. G. Shulman, P. Eisenberger, B. K. Teo, B. M. Kincaid, and G. S. Brown, *Mol. Biol.*, **124** (1978), pp. 305-321.

High Resolution Carbon-13 Nuclear Magnetic Resonance Studies of Glucose Metabolism in E Coli. K. Ugurbil, T. R. Brown, J. A. Der Hollander, P. Glynn, and R. G. Shulman, *Proc. Nat. Acad. Sci.*, **75** (Aug. 1, 1978), pp. 3742-3746.

High Resolution Phosphorus-31 Nuclear Magnetic Resonance Study of Rat Liver Mitochondria. S. Ogawa, H. Rottenberg, T. R. Brown, R. G. Shulman, C. L. Castillo, and P. Glynn, *Proc. Nat. Acad. Sci.*, **75** (1978), pp. 1796-1800.

On the Measurement of PH in E Coli by Phosphorus-31 Nuclear Magnetic Resonance. S. Ogawa, R. G. Shulman, P. Glynn, T. Yamane, and G. Navone, *Biochem. Biophys. Acta*, **502** (1978), pp. 45-50.

Phosphate Metabolites in Lymphoid, Friend Erthroleukemic and Hela Cells Observed by High Resolution Phosphorus-31 Nuclear Magnetic Resonance. G. Navon, R. Navon, R. G. Shulman, and T. Yamane, *Proc. Nat. Acad. Sci.*, **75** (February 1978), pp. 891-895.

Response of the Bohr Group Salt Bridges to Ligation of the T-State of Haemoglobin Kansas. J. V. Kilmartin, N. L. Anderson, and S. Ogawa, *J. Mol. Biol.*, **123** (1978), pp. 71-87.

X-Ray Absorption Spectroscopy of Biological Molecules. R. G. Shulman, P. Eisenberger, and B. M. Kincaid, *Ann. Rev. Biophys. Bioeng.* **7** (1978), pp. 559-578.

CHEMISTRY

Analysis of the Electron Spin Echo Decay Envelope for Neodymium (3+): ATP Complexes. T. Shimizu, W. B. Mims, J. Peisach, and J. L. Davis, *J. Chem. Phys.*, March 1979.

Analysis of Nonlinear Stress Relaxation in Polymeric Glasses. S. Matsuoka, S. S. Beader, and H. E. Earn, *Poly. Eng. Sci.*, **18**, No. 4 (1978), pp. 1074-1080.

Analysis of Tin Nickel Electroplate by Secondary Ion Mass Spectrometry, Ion Scattering Spectrometry, and Rutherford Backscattering. R. Schubert, *J. Electrochem. Soc.*, **125**, No. 8 (August 1978), pp. 1215-1218.

Azulene Revisited: Picosecond Decay of the Sulfur State in the Gas Phase and in Solution. D. Huppert, J. Jortner, and P. M. Rentzepis, *Israeli J. Chem.*, Volume on Excited States, 1978.

Consideration of Processing Conditions on the Properties of Solid Polymers. S. Matsuoka, *Poly. Eng. Sci.*, **18**, No. 4 (1978), p. 264.

The Deuteron Quadrupole Coupling Constant in Carbon Deuterium (3) Fluoride. L. O. Snyder, *J. Chem. Phys.*, **68**, No. 1 (1978), pp. 340-341.

Deuteron Quadrupole Coupling in Molecules. L. O. Snyder, *J. Chem. Phys.*, **68**, No. 1 (1978), pp. 291-294.

The Linear Electric Field Effect in Stellacyanin, Azurin, and in Some Simple Copper Model Compounds. J. Peisach and W. B. Mims, *Eur. J. Biochem.*, **84** (1978), pp. 207-214.

Linear and Nonlinear Optical Properties of Sodium (2) Antimony Pentafluoride. J. G. Bergman, D. S. Chemla, R. Fouracoe, and G. Mascherpa, *J. Solid State Chem.*, **23**, No. 1-2 (1978), pp. 187-190.

Molecular Orbital Theory of the Compton Profile of Fluorine (2). L. O. Snyder and T. A. Weber, *J. Chem. Phys.*, **68**, No. 6 (March 15, 1978), pp. 2974-2979.

Molecular Recognition and Self-Organization in Fluorinated Hydrocarbons. F. J. Stillingner and Z. Wasserman, *J. Phys. Chem.*, **82**, No. 8 (April 20, 1978), pp. 929-940.

The Nuclear Modulation Effect in Electron Spin Echoes for Complexes of Copper (2+) and Imidazole with Nitrogen-14 and Nitrogen-15. W. B. Mims and J. Peisach, *J. Chem. Phys.*, **69** (1978), pp. 4921-4930.

Polarization Model Representation of Hydrogen Fluoride for Use in Gas and Condensed Phase Studies. F. H. Stillingner, *Int. J. Quantum Chem.*, **14** (1978), pp. 649-657.

Proton Transfer Reactions and Kinetics in Water. F. H. Stillingner in *Theoretical Chemistry Advanced Perspectives*, Vol. 3, H. Eyring and D. Henderson, eds., N.Y.: Academic Press, 1978, pp. 177-234.

Quantum Chemical Calculations to Model Borate Glass Electronic Structure and Properties. L. C. Snyder in *Borate Glasses: Structure, Properties, Applications*, L. D. Pye, V. D. Frechette, and N. J. Kreidl, eds., New York: Plenum, 1978, pp. 151-165.

The Reaction of Poly(vinyl Chloride) with Thiols. W. H. Starnes, I. M. Plitz, D. C. Hische, D. J. Freed, F. C. Schilling, and M. L. Schilling, *Amer. Chem. Soc. Polym. Preprints*, **19**, No. 1 (March 1978), pp. 623-628.

Recent Fundamental Developments in the Chemistry of Poly(vinyl Chloride) Degradation and Stabilization. W. H. Starnes, *ACS Advan. Chem. Ser.*, **169** (1978), pp. 309-323.

Reductive Dehalogenation with Tri(N-Butyl) Tin Hydride: A Powerful New Technique for Use in Poly(vinyl chloride) Microstructure Investigations. W. H. Starnes, R. L. Hartless, F. C. Schilling, and F. A. Bovey, *ACS Advan. Chem. Ser.*, **169** (1978), pp. 324-332.

Relaxation Processes in Matrix Isolated Carbon (3). V. E. Bondybey and J. H. English, *J. Chem. Phys.*, **68**, No. 10 (May 15, 1978), pp. 4841-4843.

Revised Central Force Potentials for Water. F. H. Stillingner and A. Rahman, *J. Chem. Phys.*, **68**, No. 2 (January 15, 1978), pp. 666-670.

Simulation of N-Butane Using a Skeletal Alkane Model. T. A. Weber, *J. Chem. Phys.*, **69** (September 15, 1978), pp. 2347-2354.

Stabilization of Poly(vinyl Chloride) by Thiols: A Mechanistic Study. W. H. Starnes, I. M. Plitz, D. D. Hische, D. J. Freed, F. C. Schilling, and M. L. Schilling, *Macromolecules*, **11** (Mar/Apr 1978), pp. 373-382.

Stochastic Classical Trajectory Approach to Relaxation Phenomena: I. Vibrational Relaxation of Impurity Molecules in Solid Matrices. M. Shugard, J. O. Tully, and A. Nitzan, *J. Chem. Phys.*, **69**, No. 1 (July 1, 1978), pp. 336-345.

Study of Melting and Freezing in the Gaussian Core Model by Molecular Dynamic Simulation. F. H. Stillingner and T. A. Weber, *J. Chem. Phys.*, **68**, No. 8 (April 15, 1978), pp. 3837-3844.

Subpicosecond Vibrational Relaxation in Calcium (2) in Rare Gas Solids. V. E. Bondybey and C. Albiston, *J. Chem. Phys.*, **63**, No. 7 (April 1, 1978), pp. 3172-3176.

Tantalum Ion Transport Number During the Anodic Oxidation of Beta-Tantalum Films. N. Schwartz and W. M. Augustyniak, *J. Electrochem. Soc.*, **125** (1978), p. 1812.

Tapered Windows in Phosphorus Doped Silicon Dioxide by Ion Implantation. J. C. North, T. G. McGahan, D. W. Rice, and A. C. Adams, *IEEE Trans. Electron. Dev.*, **25**, No 7 (July 1978), pp. 809-812.

Theory and Practice on Nonlinear Behaviour of Polymeric Solids, II. Programmed Calculation on Yield, Creep, and Notched Impact Strength. S. Mat-suika and J. T. Ryan, *Soc. Plast. Eng., Tech. Conf. Preprint*, 1978, pp. 222-226.

COMPUTING

Analog Read Only Memory Using Gadolinium Molybdate. R. A. Lemons, M. M. Geary, L. A. Coloren, and H. G. Mattes, *Appl. Phys. Lett.*, **33**, No. 5 (September 1, 1978), p. 373-375.

An Assessment of the Technology for Data and Program Conversion. M. M.

Kaplan and N. H. Goguen, Proc. ACM/NBS Workshop Nat. Comput. Conf., 1978, pp. 887-907.

Coding Theorems for Individual Sequences. J. Ziv, IEEE Trans. Inform. Theory, 24, No. 4 (July 1978), pp. 405-412.

Computer Simulation of Charge Dynamics in Electron Irradiated Polymer Foils. D. A. Berkley, Proc. Elec. Insul. Dielec. Nat. Acad. Sci. Ann. Conf., Washington, D.C., 1978, pp. 26-32.

MAGIN—A Finite Element Computer Program for 2-D and Axisymmetric Magnetic Field Problems. E. Gauncial and S. Das Gupta, J. Inst. Eng. India, Electron. Telecommun. Eng. Div., 58, No. 3 (December 1977), pp. 166-170.

Mathematical Programming Approaches to System Partitioning. J. L. Uhrig, IEEE Trans. Syst. Man. Cybern., 8, No. 7 (July 1978), pp. 540-548.

A Microprocessor-Based Time Division Multiplexer. J. W. Smith, Proc. Electron. Nat. Conf., 32, October 1978.

Microprogrammed Spectrum Analysis. T. J. Mulrooney, Proc. 11th Microprogramming Annual Workshop, November 1978, pp. 90-99.

MVS/VM (1980-1985): A User Perspective. D. M. Becker, J. A. Jonekait, and J. Michelin, Proc. SHARE 5, August 1978, Vol. I, pp. 124-142.

A Relative Entropy-Like Measure for System Organization. J. A. Chaikin and R. A. Orchard, Proc. 14th Comput. Perform. Eval. User Group Meeting, October 1978, p. 259-262.

Software Development for Microprocessors—A Case Study. F. A. Salomon, Proc. Comput. Software Appl. Conf., 1978, pp. 110-113.

A Workshop Report: The New and the Not-So-New. M. F. Siana and G. G. Dumas, Computer, 11, No. 3 (March 1978), pp. 47-51.

ELECTRICAL AND ELECTRONIC ENGINEERING

Adaptive Digital Radio Receivers for Combating Frequency Selective Fading. L. J. Greenstein and D. Vitello, IEEE Trans. Commun., April 1979.

Analog Viterbi Decoding for High Speed Digital Satellite Channels. A. S. Acampora and R. Gilmore, Proc. Nat. Telecommun. Conf. Rec., December 1977, pp. 34: 6/1-5.

Analysis of an Interference-Fit Pin Connection. R. P. Goel, Proc. 28th Electron. Compon. Conf. (April 1978), pp. 116-120.

A Comparative Study of Several General Convergence Conditions for Algorithms Modeled by Point-to-Set Maps. S. Tishyadhigama, E. Polak, and R. Klessig, Electron. Res. Lab. Memo, Univ. Calif., Berkeley, November 1977.

Control of Limit Cycles Oscillations in Second-Order Recursive Digital Filters Using Constrained Random Quantization. V. B. Lawrence and K. V. Mina, IEEE Trans. Acoust. Speech Signal Process., 26, No. 2 (April 1978), pp. 127-134.

A Digital Codec Simulation Facility. W. R. Daumer, IEEE Trans. Commun., 26, No. 5 (May 1978), pp. 665-669.

Electronic Micropositioning with Ferroelastic-Ferroelectrics. R. A. Lemons and L. A. Coloren, Rev. Sci. Instrum., 49, No. 12 (December 1978), pp. 1650-1652.

Envelope Fluctuation Statistics of Filtered PSK and Other Digital Modulations. L. J. Greenstein and P. J. Fitzgerald, IEEE Trans. Commun., April 1979.

From Analog to Digital—New Trends in Signaling and Switching. J. S. Ryan, Proc. ICC Conf. Rec. (1978), p. 13.2.1.

High-Bit Rate Optical Fiber Data Links Using Indium Gallium Arsenide Phosphide LEDs Emitting at 1.3 Micron. A. G. Dentai, W. M. Muska, L. I. Tingye, and T. P. Lee, Proc. OSA/IEEE Laser Electropt. Sys. Conf., February 1978, pp. 28, 30.

Light Emitting Diodes as Receivers with Avalanche Gain. W. M. Hubbard and H. E. Kehlenbeck, Electron. Lett., 14, No. 17 (August 17, 1978), pp. 553-554.

Maximum Likelihood Decoding of Binary Convolutional Codes on Band-Limited Satellite Channels. A. S. Acampora, IEEE Trans. Commun., 26, No. 6 (June 1978), pp. 766-776.

Measurement of Single-Mode Fiber Core-Cladding Concentricity. A. R. Tynes, R. M. Derosier, and W. G. French, Electron. Lett., 14 (February 16, 1978), pp. 113-115.

- A Microprocessor Log PCM/ADPCM Code Converter.** J. J. Dubnowski, IEEE Trans. Commun., 26, No.5 (May 1978), pp. 660-664.
- A Multipath Fading Channel Model for Terrestrial Digital Radio.** L. J. Greenstein, IEEE Trans. Commun., 26, No. 8 (August 1978), pp. 1247-1250.
- An Optically Triggered Double Heterostructure Linear Bilateral Phototransistor.** S. Knight, L. R. Dawson, V. G. Keramidas, and M. G. Spencer, Proc. Int. Electron. Dev. Meeting (December 1977), p. 472.
- Optimal, Causal, Simultaneous Detection and Estimation of Random Signal Fields in Gaussian Noise Field.** T. T. Kadota, IEEE Trans. Inform. Theory, 24, No. 3 (May 1978), pp. 297-308.
- SEAT—Simulated Environment Accelerated Test.** N. Schwartz and D. D. Bacon, J. Electrochem. Soc., 125 (1978), p. 1495.
- Simple Switching Control Method Changes Power Converter into a Current Source.** C. W. Deisch, Proc. IEEE PESC 1978 Rec. (July 1978), p. 300-6.
- A Stability RC Circuit Using High Nitrogen Doped Tantalum.** O. J. Duff, G. J. Koerckel, R. A. DeLuca, E. H. Mayer, and W. Worobey, Proc. 28th Electron. Compon. Conf. (April 1978), pp. 229-233.
- Variable Delay Using Acoustic Bulk Wave Reflection from a Ferroelastic-Ferroelectric Domain Wall.** R. A. Lemons and L. A. Coloren, Proc. IEEE Ultrasonics Symp., 1978, pp. 188-192.

MATERIALS SCIENCE

- Applications of Ion Implantation to Magnetic Bubble Devices.** J. C. North, R. Wolfe, and T. J. Nelson, J. Vacuum Sci. Technol., 15 (September/October 1978), pp. 1675-1684.
- Calcium Orthovanadate—A New High Temperature Ferroelectric.** A. M. Glass, S. C. Abrahams, A. A. Ballman, and G. Loiacono, Ferroelectrics, 17 (April 1978), pp. 579-582.
- Cleaning Photomasks with Scrubbers and High-Pressure Water.** W. H. Kroeck, R. F. Doll, and E. L. Stokes, Circuits Mfg. (June 1978), pp. 16-21.
- Copper Deactivators for Polyolefin Insulation.** M. G. Chan, H. M. Gilroy, L. Johnson, and W. M. Martin, Proc. 27th Wire Cable Int. Symp., November 1978, pp. 99-106.
- Depth Profiles of Sodium and Calcium in Glasses—a Comparison of Secondary Ion Mass Analysis and Auger Spectrometry.** D. L. Malm, M. J. Vasile, F. J. Padden, D. B. Dove, and O. G. Pantano, J. Vacuum Sci. Technol., 15, No. 1 (January/February 1978), pp. 35-38.
- The Design and Optimization of Directly Heated Lanthanum Hexaboride Cathode Assemblies for Electron-Beam Instruments.** P. H. Schmidt, L. D. Longinotti, D. C. Joy, S. D. Ferris, H. J. Leamy, and Z. Fisk, J. Vacuum Sci. Technol., 15, No. 4 (July/August 1978), pp. 1554-1560.
- Diffusion Effects of the Heat Treatment of Gold-Silver on Iron-Nickel Dry Sealed Reeds.** C. A. Haque, Proc. 9th Int. Elec. Contact Phenom. Conf. (1978), pp. 605-609.
- Diurnal Variation of Cosmic Ray Intensity, I: Two Approaches to the Study.** J. W. Sari, D. Venkatesan, and L. J. Lanzerotti, J. Geophys. Res., 83 (1978), pp. 5139-5150.
- High Temperature Resistive Phase Transition in A15 High Temperature Superconductors.** C. W. Chu, C. Y. Huang, P. H. Schmidt, and K. Sugawara in *Superconductivity in d- and f-Band Metals*, D. H. Douglass, ed., New York: Plenum, 1976, p. 453.
- High Temperature Superconductivity in Copper Chlorine.** E. I. Blount and J. C. Phillips, J. Less Common Metals, 62 (1978), pp. 457-461.
- Impurity-Induced Exaggerated Grain Growth in Mn-Zn Ferrites.** M. F. Yan and D. W. Johnson, J. Amer. Ceram. Soc., 61, No. 7-8 (1978), pp. 342-349.
- Interaction of Nitrogen Oxide and Copper at Various Relative Humidities.** R. Schubert, J. Electrochem. Soc., 125, No. 7 (July 1978), pp. 1114-1116.
- Investigation of Titanium-Platinum Diffusion Barrier for Gold Beam Leads on Aluminum.** S. P. Murarka, H. J. Leninstein, I. A. Blech, T. T. Sheng, and M. H. Read, J. Electrochem. Soc., 125, No. 1 (1978), pp. 156-162.
- Low Work Function Electron Emitter Hexaborides.** P. H. Schmidt and D. C.

Joy, J. Vacuum Sci. Technol., 15, No. 6 (November/December 1978), p. 1309.

Measurement of MIS Capacitors with Oxygen-doped Aluminum (X) Gallium (1-X) Arsenic Insulating Layers. H. G. Casey, A. Y. Cho, D. V. Lang, and E. H. Nicollian, J. Vacuum Technol., 15 (1978), p. 1408.

Photograph of a Giant Structural Distortion in a Quasi-One-Dimensional Organic Crystal. J. B. Mock, G. A. Thomas, D. E. Moncton, and M. Kaplan, J. Phys. Chem. Solids, 39, No. 3 (1978), pp. 253-254.

Potential Problem Areas in Beta Backscatter Measurement Technology. R. R. Buckley, Proc. 1st Amer. Electroplat. Soc. Test. Surf. Finish, New York City, March 1978, pp. 1-7; Proc. 65th Assoc. Tech. Ann. Conf., Washington, D. C., June 1978, pp. 3-10.

Predicting Stiffness, Creep, and Fracture Characteristics of Cable Jackets from Material Properties. G. M. Yanizeski, E. D. Nelson, and C. J. Alciscic, 25th Wire Cable Symp., Cherry Hill, N.J., November 1976.

Press Fit Pins in Printed Circuit Boards, Third, Fourth, Fifth, and Sixth Test Series. P. J. Tamburro, Proc. 10th Ann. Connect. Symp., October 1977, pp. 1-20.

Pulsed EPR Studies of Copper in Some Binary Oxide Glasses. W. B. Mims, G. E. Peterson, and C. R. Kurkjian, Phys. Chem. Glass, 19, No. 1 (February 1978), pp. 14-18.

Removal of Particulate Contamination from Hard Surface Photomasks by Various Cleaning Techniques. W. H. Kroeck, R. F. Doll, and E. L. Stokes, Proc. Kodak Microelectron. Sem., May 1978, pp. 26-32.

Silicon Monoxide Anti-Reflection Coatings for INP/CDS Solar Cells. D. H. Olson, J. Vac. Sci. Technol., 15, No. 1 (January/February 1978), pp. 130-132.

Sealed Extrusion—A Coating Method for Photoprinting UV Curable Liquid Resin Films. G. B. Fefferman and T. V. Lake, 4th Radiation Curing Conf. Tech. Paper, Soc. Manu. Eng., pp. 1-18.

Simple Pressurized Chamber for Liquid Encapsulated Czochralski Crystal Growth of Indium Phosphide and Several Chalcopyrites. E. Buehler, J. Cryst. Growth, 43, No. 5 (June 1978), pp. 584-588.

Sintering of High Density Ferrites. M. F. Yan and D. W. Johnson, in *Proceedings of Crystalline Ceramics*, H. Palmour, R. F. Davis, and T. M. Hare, eds., New York: Plenum, 1978, pp. 393-402.

A Stencil Technique for the Preparation of Thin Film Josephson Devices. L. N. Dunkleberger, J. Vacuum Sci. Tech., 15, No. 1 (January/February 1978), pp. 88-90.

MATHEMATICS AND STATISTICS

Discrete Balancing Games. J. C. Lagarias, Bull. Inst. Math. Acad., 5 (1977), pp. 363-373.

Signatures of Units and Congruences (Mod 4) in Certain Real Quadratic Fields. J. C. Lagarias, J. Reine Angew. Math., 301 (1978), pp. 142-146.

PHYSICS

Analysis and Operation of UHF Squid with Tapped Tank Circuit. L. D. Jackel, J. H. W. Stoeckenius, and R. W. Epworth, J. Appl. Phys., 49, No. 1 (January 1978), pp. 471-472.

Anisotropy of Thermionic Electron Emission Values for Lanthanum Hexaboride Single-Crystal Emitter Cathodes. P. H. Schmidt, D. C. Joy, L. D. Longinotti, H. J. Leamy, S. O. Ferris, and Z. Fisk, Appl. Phys. Lett., 28 (1976), pp. 400-401.

Anomalous Dielectric Absorption in Silicone Dioxide-Based Glasses. M. A. Bosch, in *The Physics of SiO₂ and Its Interfaces*, S. T. Pantelides, ed., New York: Pergamon, 1978, pp. 294-298.

Anomalous Transport Produced by Kinetic Alfvén Wave Turbulence. A. Hasegawa and K. Mima, J. Geophys. Res., 83, No. A3 (March 1, 1978), pp. 117-123.

Association of ULF Magnetic Variations and Changes in Ionospheric Conductivity During Substorms. L. J. Lanzerotti, C. G. MacLennan, and C. Evans, J. Geophys. Res., 83 (1978), pp. 2525-2532.

Carrier-Lattice Coupling in Titanium Sulfide and Titanium Selenide. J. A. Wilson, Proc. Latt. Dyn. Int. Conf., 1978.

- A Conductor Crossing Problem in Magnetic Bubble Memories.** W. Strauss, J. Appl. Phys., 49, No. 3, Part 2 (March 1978), pp. 1897-1899.
- Crystallographic Factors Affecting the Structure of Polymeric Spherulites. Part I: Morphology of Directionally Solidified Polyamides.** A. J. Lovinger, J. Appl. Phys., 49 (1978), pp. 5003-5013.
- Crystallographic Factors Affecting the Structure of Polymeric Spherulites. Part II: X-Ray Diffraction Analysis of Directionally Solidified Polyamides and General Conclusions.** A. J. Lovinger, J. Appl. Phys., 49 (1978), pp. 5014-5028.
- Demountable Helium-3 Melting Curve Thermometer.** L. R. Corruccini, K. R. Mountfield, and W. C. Sprenger. Rev. Sci. Instrum., 49, No. 3 (March 1978), pp. 314-318.
- Diagnostics with Series-Connected Josephson Tunnel Junctions.** A. F. Hebard and R. H. Eick, J. Appl. Phys., 49, No. 1 (January 1978), pp. 338-343.
- Diffusion in a Palladium Copper-Silicon Metallic Glass.** H. S. Chen, L. C. Kimerling, J. M. Poate, and W. L. Brown. Appl. Phys. Lett., 32, No. 8 (April 15, 1978), pp. 461-463.
- Direct Measurement of Quasiparticle Lifetime Broadening in a Strong Coupled Superconductor.** R. C. Dynes, V. Narayanamurti, and J. P. Garno, Phys. Rev. Lett., 41 (1978), pp. 1509.
- Dynamics of the Charge Density Wave: I. Impurity Pinning in a Single Chain.** H. Fukuyama and P. A. Lee, Phys. Rev. B, 17, No. 2 (January 15, 1978), pp. 535-541.
- On the Effect of a Partial Sink in Binary Diffusion in Thin Films.** H. G. Tompkins, J. Appl. Phys., 49, No. 1 (January 1978), pp. 223-228.
- The Electron-Hole Liquid in Semiconductors: Experimental Aspects.** J. C. Hensel, T. G. Phillips, and G. A. Thomas, Solid State Phys., 32 (1978), pp. 87-314.
- Electrons in Surface States on Liquid Helium.** C. C. Grimes, Surf. Sci., 73, No. 1 (September 19-22 1977), pp. 379-395.
- Electrons on the Vacuum Surface of Copper Oxide and the Screening of Patch Fields.** A. R. Hutson, Phys. Rev. B, 17, No. 4 (February 15, 1978), pp. 1934-1939.
- Energy Field Dependence of a Uniaxial Anisotropy Energy in Lithium Ferrite.** G. T. Rado, J. M. Farrari, and J. P. Remeika, J. Appl. Phys., 49, No. 3 (March 1978), p. 1953.
- Epitaxial Growth of Niobium (3) Germanium Niobium (3) Rhodium and Niobium (3) Iridium.** A. H. Dayen, T. H. Geballe, R. B. Zubeck, A. B. Hallak, and G. W. Hull, J. Phys. Chem. Solids, 39, No. 5 (1978), pp. 529-538.
- An Estimation of the Quantum Yield in the Candelominescence Process by Low Energy Hydrogen (+) Ion Bombardment.** I. S. T. Tsong, A. Corredor, W. B. White, N. H. Tolk, and J. S. Kraus, J. Electrochem. Soc., 125 (1978), p. 2015.
- Evidence for Chemical Annealing Effects in Indium Oxide Tunnel Junction Barriers.** A. F. Hebard, J. R. Arthur, and D. L. Allara, J. Appl. Phys., 49, No. 12 (1978), pp. 3039-3044.
- Exciton Contribution to the Reflection Spectrum at High Excitation Intensities in Cadmium Sulfide.** R. F. Leheny, J. Shah, and G. O. Chiang, Solid State Commun., 25, No. 9 (March 1978), pp. 621-624.
- Exciton Structure of Crystalline Potassium Cyanide.** M. A. Bosch and G. Zumbach, Phys. Rev. Lett., 41, No. 8 (August 21, 1978), pp. 590-593.
- Experimental Ferroelectric Domain Wall Motion Devices.** J. M. Geary, Appl. Phys. Lett., 32, No. 8 (April 15, 1978), pp. 455-457.
- Fast Time Heat Capacity in Amorphous Silicon Dioxide Using Heat Pulse Propagation.** R. B. Kummer, R. C. Dynes, and V. Narayanamurti, Phys. Rev. Lett., 40, No. 18 (May 1, 1978), pp. 1187-1190.
- Fermi Surface Excitations in X-Ray Photoemission Lineshapes from Metals.** G. K. Wertheim and P. H. Citrin, Photoemissions in Solids, I, in *Topics in Applied Physics*, Vol. 26, M. Cardona and L. Ley, eds., New York: Springer-Verlag, 1978.
- Forced Magnetostriction of Dysprosium Aluminum Garnet (DAG).** J. F. Dillon, E. M. Gyorgy, E. I. Blount, E. Y. Chen, H. A. Brooks, and L. G. Van Uitert, J. Appl. Phys., 49, No. 3, Part 2 (March 1978), pp. 1371-1373.
- Germanium-Tin Barrier Josephson Tunnel Junctions.** E. L. Hu, L. D. Jackel, A. R. Strand, R. W. Epworth, R. F. Lucey, C. A. Zogg, and E. Gornik, Appl. Phys. Lett., 32, No. 9 (May 1, 1978), pp. 584-586.

- Hardness and Bonding in A-15 Superconducting Compounds.** G. Y. Chin, J. H. Wernick, T. H. Begalle, S. Mahajan, and S. Nakahara, *Appl. Phys. Lett.*, **33**, No. 1 (July 1, 1978), pp. 103-105.
- A High Resolution Electron Microscopy Study of the Silicon-Silicon Dioxide Interface.** O. L. Krivanek, T. T. Sheng, and D. C. Tsui, *Appl. Phys. Lett.*, **32**, No. 7 (April 1, 1978), pp. 437-439.
- High Temperature Resistive Phase Transition in Al₅ High Temperature Superconductors.** C. W. Chu, C. Y. Huang, P. H. Schmidt, and K. Sugawara, in *Superconductivity in d- and f-Band Metals*, D. H. Douglass, ed., New York: Plenum, 1976, p. 453.
- Impact Strength of Polymers: 2. The Effect of Cold Working and Residual Stress.** B. S. Thakkar and L. J. Broutman, *Proc. 36th Ann. Tech. Conf., Soc. Plast. Eng.*, Vol. XXIV, April 1978, pp. 295-303. Inelastic Electron Scattering in Nickel. A. E. Meixner, M. Schluter, P. M. Platzman, and G. S. Brown, *Solid State Commun.*, **27** (1978), pp. 1255-1257.
- Loss in Cleaved Titanium-Diffused Lithium Niobate Waveguides.** I. P. Kaminow and L. W. Stulz, *Appl. Phys. Lett.*, **33**, No. 1 (July 1, 1978), pp. 62-64.
- The Magnetic Behavior of a Spin-1/2 Amorphous Antiferromagnet.** R. B. Kummer, R. E. Walstedt, S. Geschwind, V. Narayanamurti, and G. E. Devlin, *Phys. Rev. Lett.*, **40**, No. 16 (April 17, 1978), pp. 1098-1100.
- Magneto-optical Properties of Magnetic Garnets.** J. F. Dillon in *Physics of Magnetic Garnets*, A. Paoletti, ed., Amsterdam: North Holland, 1978, pp. 379-415.
- Measurements of the Absorption Edge in Fused Silica.** I. P. Kaminow, B. G. Bagley, and C. G. Olson, *Appl. Phys. Lett.*, **32**, No. 2 (January 15, 1978), pp. 98-99.
- A Memory Device Utilizing the Storage of Abrikosov Vortices at an Array of Pinning Sites in a Superconducting Film.** A. E. Hebard and A. T. Fiory, *Proc. 44th Amer. Inst. Phys. Conf.*, pp. 465-469.
- Modeling the Contrasting Semimetallic Characters of Titanium Disulfide and Titanium Diselenide.** J. A. Wilson, *Phys. Stat. Sol. B*, **86**, No. 1 (March 1, 1978), pp. 11-36.
- Molecular Dynamics Studies of a One-Dimensional Complex Order Parameter Model.** T. R. Koehler and P. A. Lee, *Phys. Rev.*, **B16** (1977), p. 5203.
- Molecular SCF Calculations to Model (III) Surface States and Relaxation of Diamond.** L. C. Snyder and Z. Wasserman, *Surf. Sci.*, **31**, No. 2 (February 1978), pp. 407-413.
- New Ductive Chromium-Cobalt Iron Permanent Magnet Alloys for Telephone Receiver Applications.** G. Y. Chin, J. T. Plewes, and B. C. Wonsiewicz, *J. Appl. Phys.*, **49**, No. 3, Part 2 (March 1978), pp. 2046-2048.
- Nonlinear Self-Modulation of Ion-Acoustic Waves.** H. Ikezi, K. Schwarzenegger, A. L. Simons, Y. Ohsawa, and T. Kaminura, *Phys. Fluids*, **21**, No. 2 (February 1978), pp. 239-245.
- Optical Birefringence of Ultrathin Aluminum (X) Gallium (1-X) Arsenide Gallium Arsenide Multilayer Heterostructures.** J. R. Van Der Ziel and A. C. Gossard, *J. Appl. Phys.*, **49**, No. 5 (May 1978), pp. 2919-2921.
- Optically Pumped Taper Coupled Gallium Arsenide-Aluminum (X) Gallium (1-X) Arsenide Laser with a Second Order Bragg Reflector.** R. C. Miller, W. A. Nordland, R. A. Logan, and L. F. Johnson, *J. Appl. Phys.*, **49**, No. 2 (February 1978), pp. 539-542.
- Optical Properties of Expanded Fluid Mercury.** H. Ikezi, A. L. Schwarzenegger, A. L. Simons, A. L. Passner, and S. L. McCall, *Phys. Rev. B*, **18**, No. 6 (September 1978), pp. 2494-2499.
- Optical Studies of the Magnetic Phase Diagram of Iron Chloride (2).** J. F. Dillon, Chen E. Yi, and H. J. Guggenheim, *Phys. Rev. B*, **18** (1978), pp. 377-387.
- Propagation of Nonlinear Waves on an Electron-Charged Surface of Liquid Helium.** K. Mina and H. Ikezi, *Rev. B*, **17**, No. 9 (May 1, 1978), pp. 3567-3575.
- Questions Concerning the Form Taken by the Cow and the Accompanying PSD in 2H-Tantalum Selenide and Closely Related Materials.** J. A. Wilson, *Phys. Rev. B*, **17**, No. 10 (May 15, 1978), pp. 3880-3898.
- Removal of Patriculate Contamination from Hard Surface Photomasks by Various Cleaning Techniques.** W. H. Kroeck, R. F. Doll, and E. L. Stokes, *Proc. Kodak Microelectron. Sem.*, May 1978, pp. 26-32.
- The Role of the Thermal Relaxation Time in Pulse Nonlinearity Measure-**

ments. A. F. Hebard and W. M. Steverson, *J. Appl. Phys.* 49, No. 10 (1978), pp. 5250-5255.

Screening of 3D Holes in the Rare Earths. G. K. Wertheim and M. Campagna, *Solid State Commun.*, 26, No. 8 (May 1978), pp. 553-556.

Search for Cluster Effects in X-Ray Production by Fast Hydrogen Molecules. A. Lurio, H. H. Andersen, and L. C. Feldman, *Phys. Rev. A*, 17, No. 1 (January 1978), pp. 90-92.

Sensitivity of the TC of Niobium (3) Germanium to Hydrogen Content. W. A. Lanford, P. H. Schmidt, J. M. Rowell, J. M. Poate, and R. C. Dynes, *Appl. Phys. Lett.*, 32, No. 5 (March 1978), pp. 339-341.

Shift in Cyclotron Resonance of Electrons on Liquid Helium Surfaces. A. F. Cheng and P. M. Platzman, *Solid State Commun.*, 25, No. 10 (March 1978), pp. 813-815.

Significance of the Channeling Surface Peak in Thin Film Analysis. R. L. Kauffman, L. C. Feldman, P. J. Silverman, and R. A. Zuhr, *Appl. Phys. Lett.*, 32, No. 2 (January 15, 1978), pp. 93-94.

Spin Polarization of Electrons Field Emitted from Single-Crystal Iron Surfaces. M. Landolf and Y. Yafet, *Phys. Rev. Lett.*, 40, No. 21 (May 22, 1978), pp. 1401-1403.

Stabilization of Drift Cyclotron Loss-Cone Mode by Low Frequency Density Fluctuations. A. Hasegawa, *Phys. Rev. Lett.*, 40, No. 14 (April 3, 1978), pp. 938-941.

Stochastic Controllability of Linear Discrete Systems with Multiplicative Noise. S. E. Harris, *Int. J. Contr.*, 27, No. 2 (February 1978), pp. 213-227.

Structure of the Electron Gas at the Surface of Liquid Helium. C. C. Grimes, *Journal de Physique*, 39, No. C6 (August 1978), pp. 1352-1357.

The Structure of Sputtered Superconducting Niobium (3) Germanium Films Revealed by X-Ray Diffraction, Transmission Electron Diffraction, and by Tunneling. P. H. Schmidt, E. G. Spencer, D. C. Joy, and J. M. Rowell, in *Superconductivity in d- and f-Band Metals*, D. H. Douglass, ed., New York: Plenum, p. 431.

Surface Effects on Valence in Rare Earth Intermetallic Compounds. G. K. Wertheim, J. H. Wernick, and G. Creelius, *Phys. Rev. B*, 18 (July 15, 1978), pp. 875-879.

Titanium Diselenide: Semiconductor, Semimetal or Excitonic Insulator. M. M. Traum, G. Margaritondo, N. V. Smith, J. E. Rowe, and F. J. DiSalvo, *Phys. Rev. B*, 17, No. 4 (February 15, 1978), pp. 1836-1838.

Two-Dimensional Electrical Conductivity in Quench-Condensed Metal Films. R. C. Dynes, J. P. Garno, and J. M. Rowell, *Phys. Rev. Lett.*, 40, No. 7 (February 12, 1978), pp. 479-482.

Two-Photon Absorption Spectrum of Aluminum Arsenide-Gallium Arsenide Monolayers. J. P. Van Der Ziel and A. C. Gossard, *Phys. Rev. B*, 17, No. 2 (January 15, 1978), pp. 765-768.

Verification and Design Aspects of True Concurrency. D. W. Mizell, 5th Ann. ACM Symp. Conf. Rec. Princ. Program Lang., January 1978, pp. 171-175.

Why a Session on LSI Testing? T. R. Finch, *Proc. Compcon*, February/March, 1978, p. 96.

PSYCHOLOGY

Perceptual Delay—A Consequence of Metacontrast and Apparent Motion. R. S. Didner, *Proc. 21st Hum. Factor Soc. Ann. Meet.*, October 1977, p. 33-37.

Personnel Subsystem Design Experience Under a Total System Development Philosophy. M. W. Soth and I. W. Grosso, *Proc. 21st Hum. Factor Soc. Ann. Meet.*, October 1977, pp. 20-23.

SYSTEMS ENGINEERING AND OPERATIONS RESEARCH

The Basic Principles of Teleconferencing. C. Stockbridge and R. J. Miller, in *Planning Exploratory Trials of New Interpersonal Telecommunications Evaluating New Telecommunications Services*, M. C. J. Elton, ed., New York: Plenum, 1978, pp. 721-746.

Bell System's Chicago Lightwave Communications Evaluation. D. D. Sell, *Proc. OSA/IEEE Laser Electroopt. Syst. Conf.* (February 1978), p. 26.

Centralized Maintenance of Telecommunication Equipment. A. Cuilwik and I.

R. Feuster, Proc. Nat. Telecommun. Conf. Rec., December 1977, p. 32:1/1-4.

CONES: A Complete Splicing System for Aerial, Buried and Underground Telephone Plant. D. R. Frey and G. S. Cobb, Proc. 27th Wire Cable Int. Symp., November 1978, pp. 287-292.

The Dimension 2000 PBX: Network Design and Call Capacity Estimation. A. M. Gerrish and T. G. Lewis, Proc. Int. Priv. Electron. Switch. Syst. Conf., April 1978, pp. 44-47.

Horizon Communication System—An Advanced Technology System for Small Business Customers. T. M. Quinn, Proc. Int. Priv. Electron. Switch. Syst. Conf. (April 1978), p. 70-75.

The New N4 Carrier Terminal. C. V. Fanuele, R. L. LeBlanc, and L. Y. Levesque, Telecommun. Conf., 1978, December 1978, Vol. 2, pp. 21.3.1-8.

Prospects for Lower Cost Telephone Exchange Service. D. Gillette, Public Util. Fortn. (May 11, 1978), pp. 39-40.

Recent Trends in Transmission Planning for Local Networks. R. W. Hatch and J. L. Sullivan, Proc. Subscriber Loop Serv. Int. Symp., March 1978, pp. 195-199.

The Role of the ITU and CCITT in Telecommunications. J. S. Ryan, Commun. High Speed Digital Trans. Tech. Switch. Syst. Seminar, Princeton U. (March 1978), pp. 2/1-2/6.

Telecommunications Is Going Digital. S. J. Buchsbaum, World Book Encyclopedia, Vol. T, February 1978, p. 73.

The Use of Thermal Analysis in the Selection of Stabilizers for Polyolefin Telecommunication Cable. M. G. Chan, H. M. Gilroy, I. P. Heyward, L. Johnson, and W. M. Martin, 36th Antec. Plast. Eng. Soc., 1978, pp. 381-383.

